

Application Serial No. 09/782,375
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Listing of the claims:

1. (Previously presented) A light device for illumination by a power supply circuit comprising:
 - a bulb portion,
 - a first end cap disposed at one end of the bulb portion,
 - a second end cap disposed at an end of bulb portion opposite the first end cap, the first and second end caps forming a pair of end caps on opposite ends of the bulb portion; and
 - wherein the bulb portion and the pair of end caps are dimensioned to be mounted in a fluorescent light tube socket, and
 - a plurality of light emitting diodes disposed inside the bulb portion, the light emitting diodes in electrical communication with the end cap for illuminating in response to electrical current received from the power supply circuit; and wherein the plurality of light emitting diodes is mounted on at least one circuit board; and wherein each of the plurality of light emitting diodes is mounted at an angular off-set from the circuit board to establish a predetermined radiation pattern of light.
2. (Canceled).
3. (Currently amended) A light tube device for illumination by a power supply circuit comprising:
 - a bulb portion,
 - a pair of end caps disposed at opposite ends of the bulb portion, wherein each of the pair of end caps is shaped to be coupled with a fluorescent light tube socket, and
 - a plurality of closely-spaced light emitting diodes disposed inside the bulb portion and extending between the opposite ends of the bulb portion, the light emitting diodes in electrical communication with the pair of end caps for illuminating in response to electrical current received from the power supply circuit; and wherein each of the pair of end caps is an electrical bi-pin connector.

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4. (Canceled).

5. (Previously presented) In a replacement light tube for a fluorescent light fixture having a light tube socket and a power supply circuit, the improvement comprising:

a plurality of closely-spaced light emitting diodes disposed inside a bulb portion of the light tube and in electrical communication with a pair of end caps coupled to opposed ends of the bulb portion and engageable with the light tube socket, the plurality of light emitting diodes operable to illuminate in response to electrical current delivered by the fluorescent light; and wherein each of the pair of end caps is an electrical bi-pin connector.

6. (Previously presented) The improvement of claim 5 wherein the plurality of light emitting diodes is mounted to a circuit board.

7. (Previously presented) The improvement of claim 6 wherein each of the plurality of light emitting diodes is mounted at an angular off-set from the circuit board to establish a predetermined radiation pattern of light.

8. (Canceled).

9. (Previously presented) The light device of claim 1 wherein the plurality of light emitting diodes is mounted on only one side of the at least one circuit board.

10. (Previously presented) The light device of claim 9 wherein the radiation pattern of light from each of the plurality of light emitting diodes is centered at a 90° angle relative to the at least one circuit board.

11. (Previously presented) The light device of claim 1 wherein each of the plurality of light emitting diodes is a white LED.

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12. (Previously presented) The light device of claim 1, wherein the plurality of light emitting diodes is displaced substantially continuously between the opposite ends of the bulb portion.

13. (Previously presented) A light device for illumination by a power supply circuit comprising:

a bulb portion,

a first end cap disposed at one end of the bulb portion, and

a plurality of light emitting diodes disposed inside the bulb portion, the light emitting diodes in electrical communication with the end cap for illuminating in response to electrical current received from the power supply circuit; and wherein the plurality of light emitting diodes is mounted on at least one circuit board; and wherein each of the plurality of light emitting diodes is mounted at an angular off-set from the circuit board to establish a predetermined radiation pattern of light; and wherein each of the plurality of light emitting diodes is arranged into one of a plurality of equidistantly-spaced light emitting diode banks, each of the plurality of light emitting diode banks comprising at least two light emitting diodes.

14. (Previously presented) The improvement of claim 5 wherein the bulb portion is annular.

15. (Previously presented) The improvement of claim 5 wherein the electric current is a direct current signal, the improvement further comprising:

a rectifier for converting an alternating current signal from the fluorescent light fixture to the direct current signal.

16. (Previously presented) In a replacement light tube for a fluorescent light fixture having a light tube socket and a power supply circuit, the improvement comprising:

a plurality of closely-spaced light emitting diodes disposed inside a bulb portion of

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the light tube and in electrical communication with a pair of end caps coupled to opposed ends of the bulb portion and engageable with the light tube socket, the plurality of light emitting diodes operable to illuminate in response to electrical current delivered by the fluorescent light fixture wherein the electric current is a direct current signal;

a rectifier for converting an alternating current signal from the fluorescent light fixture to the direct current signal; and

a pulse-width modulating circuit for receiving the direct current signal and supplying a resulting modulated signal to the plurality of light emitting diodes.

17. (Previously presented) The improvement of claim 5 wherein each of the plurality of light emitting diodes is a white LED.

18. (Previously presented) In a replacement light tube for a fluorescent light fixture having a light tube socket and a power supply circuit, the improvement comprising:

a plurality of closely-spaced light emitting diodes disposed inside a bulb portion of the light tube and in electrical communication with a pair of end caps coupled to opposed ends of the bulb portion and engageable with the light tube socket, the plurality of light emitting diodes operable to illuminate in response to electrical current delivered by the fluorescent light fixture; and wherein each of the plurality of light emitting diodes is arranged into one of a plurality of spaced light emitting diode banks, each of the plurality of light emitting diode banks comprising at least two light emitting diodes.

19. (Previously presented) The improvement of claim 6 wherein the plurality of light emitting diodes is mounted on only one side of the circuit board to emit light toward only one side of the bulb portion.

20. (Previously presented) The improvement of claim 19 wherein the radiation pattern of light from each of the plurality of light emitting diodes is centered at a 90° angle

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relative to the circuit board.

21. (Previously presented) The light device of claim 1 wherein the bulb portion comprises one of clear glass and frosted glass.

22. (Previously presented) A retrofit LED light tube for replacing a light tube in a fixture, the retrofit LED light tube comprising:

an elongated cylindrical transparent envelope;

a base cap at an end of the envelope, wherein the base cap is an electrical bi-pin connector comprising a first pin and a second pin extending perpendicularly from a surface of the base cap, wherein the first and second pins are adapted to electrically communicate with a fluorescent light socket; and

at least one LED device in electrical communication with the base cap, wherein the at least one LED device is electrically connected to a rectifier and the at least one LED device is further electrically connected to a pulse-width modulating circuit receiving a direct current signal from the rectifier and supplying a modulated signal to the at least one LED device.

23. (Canceled).

24. (Previously presented) The retrofit light tube of claim 22, wherein the LED device comprises a circuit board and a plurality of LEDs serially connected to the circuit board.

25. (Previously presented) The retrofit light tube of claim 22, further comprising:

current-limiting means coupled to the at least one LED device.

26. (Canceled).

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27. (Previously presented) The retrofit light tube of claim 22 wherein the base cap has circuitry means for connection with an AC source.

28. (Canceled).

29. (Previously presented) The light device of claim 1 wherein each of the plurality of light emitting diodes is arranged into one of a plurality of spaced light emitting diode banks, each of the plurality of light emitting diode banks comprising at least two light emitting diodes.

30. (Previously presented) The improvement of claim 5 wherein each of the plurality of light emitting diodes is arranged into one of a plurality of spaced light emitting diode banks, each of the plurality of light emitting diode banks comprising at least two light emitting diodes.

31. (Previously presented) The improvement of claim 30 wherein each of the plurality of spaced light emitting diode banks is spaced equidistant from adjacent ones of the plurality of spaced light emitting diode banks.

32. (Previously presented) The improvement of claim 18 wherein each of the plurality of spaced light emitting diode banks is spaced equidistant from adjacent ones of the plurality of spaced light emitting diode banks.